# PostScript

## LETTERS TO JCP

### Vaccination to prevent varicella and shingles

In a recent review in this journal, J Breuer[1] discussed the use of the Oka live varicella vaccination currently not licensed but obtainable on a named patient basis in the UK, particularly for children with leukaemia or solid organ transplants.[2] In the discussion on the universal vaccination strategy in the USA the incidence of serious adverse events was detailed.[1]

It should be stressed to clinicians that routine immunisation of all healthy children carries the potential risk that unrecognised immunocompromised children could inadvertently be vaccinated. It is worth bringing attention to the case of a child whose AIDS defining illness was disseminated vaccine strain varicella,[3] and a child with severe combined immunodeficiency who developed hepatitis as a result of vaccination with this strain.[4]

The child with HIV was vaccinated at a time when his CD4 count was only 8 cells/mm$^3$. Current American Academy of Pediatrics guidelines recommend that the use of varicella vaccine be considered in asymptomatic or mildly symptomatic human immunodeficiency virus infected children with CD4 counts of 25% or greater.

In view of evidence for frequent reactivation of the vaccine strain even in healthy vaccinees,[5] those whose immune system is set to deteriorate may be at risk of significant vaccine related infection. Killed varicella vaccines are less immunogenic but offer increased levels of safety. While research is carried out to improve their immunogenicity, I would like to suggest the approach of giving repeated vaccinations until protective antibody values are achieved and longterm monitoring with booster vaccinations as necessary.

Another issue is the difficulty of confirming that the vaccine strain virus was responsible. Both of the above cases[3 4] identified varicella zoster virus from vesicular fluid by direct immunofluorescence but required molecular techniques to confirm that the wild-type virus was not responsible for the illness. Therefore, whenever a "vaccine failure" occurs, it may be difficult to determine whether the wild-type or vaccine strain is responsible.

The current guideline for immunosuppressed patients is to avoid contact with those recently immunised with oral live poliovirus vaccine.[2] Until data have been collected on viral shedding from those recently immunised with the Oka vaccine, or during periods of viral re-activation, it is uncertain whether contact should also be avoided.

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#### References

1 **Breuer J**. Vaccination to prevent varicella and shingles. *J Clin Pathol* 2001;**54**:743–7.
2 *Immunisation against infectious disease*. London: Department of Health, 1996.
3 **Kramer JM**, LaRussa P, Tsai WC, *et al*. Disseminated vaccine strain varicella as the acquired immunodeficiency syndrome-defining illness in a previously undiagnosed child. *Pediatrics* 2001;**108**:E39.
4 **Ghaffar F**, Carrick K, Rogers BB, Margraf LR, *et al*. Disseminated infection with varicella-zoster virus vaccine strain presenting as hepatitis in a child with adenosine deaminase deficiency. *Pediatr Infect Dis J* 2000;**19**:764–6.
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### Author's reply

The potential risk of complications following routine immunisation of previously unrecognised immunocompromised children applies to many live attenuated vaccines, including oral polio vaccine and measles. The point that physicians should be aware of these risks and guidelines to minimise them is well taken. However, the complications from vaccination are rare and for the viral vaccines listed, including varicella, fewer than those arising from wild-type infection.[1] As such, the medical benefits of mass immunisation with oral polio vaccine and measles far outweigh the rare albeit tragic adverse consequences. Given the safety profile of the Oka vaccine, this is unlikely to be a major consideration in the decision about whether to introduce it in the UK.

There is no evidence that the Oka vaccine reactivates frequently. In the paper referred to, frequent reactivation was hypothesised as an explanation for immunity persisting in vaccinated individuals.[2] A more likely explanation for the persistence of immunity is continued exposure to circulating wild-type virus. Oka vaccine causes zoster in leukaemic children seven times less frequently than does wild-type varicella,[1] and probably also reactivates asymptomatically less than the wild-type virus. In view of the safety record and immunogenicity of Oka, repeated vaccination with a killed vaccine is unnecessary, suboptimal, not cost effective, and unlikely to prove acceptable to patients.

Distinguishing the wild-type from the vaccine strain of virus by the polymerase chain reaction is part of the normal surveillance for mass vaccination programmes. The UK currently undertakes this routinely for other viral vaccines, including poliovirus, measles, and mumps.

Unlike oral polio, where viral shedding is common and, indeed, considered valuable to achieving vaccine coverage, the Oka virus is rarely transmitted to secondary cases, and considerably less frequently than is seen for the wild type virus.[1] Moreover, the current advice from the ACIP is to vaccinate family contacts of immunosuppressed children to prevent them transmitting the much more virulent wild-type virus. Should a vaccine related infection occur, the virus is sensitive to aciclovir and thus easily treated.

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#### References

1 **Sharrar RG**, LaRussa P, Galea S, *et al*. The postmarketing safety profile of varicella vaccine. *Vaccine* 2000;**19**:1–13.
2 **Krause PR**. Evidence for frequent reactivation of oka varicella vaccine strain in healthy vaccines. *Arch Virol Suppl* 2001;**17**:S7–15.

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*Further details*: TAL Woods, UK NEQAS for Blood Coagulation, Rutledge Mews, 3 Southbourne Road, Sheffield S10 2QN, UK. (Tel +44 114 267 3300; Fax +44 114 267 3309; email neqas@coageqa.demon.co.uk)

#### Short Course on the Autopsy

25–28 June 2002, Department of Pathology, University of Sheffield, Sheffield, UK
*Further details*: Mrs S Clary, Department of Pathology, University of Sheffield Medical School, Beech Hill Road, Sheffield S10 2RX, UK. (Tel; +44 0114 271 2501; Fax +44 0114 278 0059; email s.clary@shef.ac.uk)

#### Diagnostic Histopathology

8–19 July 2002, Department of Pathology, University of Sheffield, Sheffield, UK
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